



Preparing Every Citizen for the Knowledge Economy

A Primer on Using Early Childhood, K–12, Postsecondary and Workforce Data

January 2012

Executive Summary

Consider the demands facing the education sector today: Expectations to graduate every student college and career ready require unprecedented alignment of policies and practices across the early childhood; elementary, secondary and postsecondary education; and workforce sectors. Answering the priority questions that will inform states' efforts to achieve this goal requires linking data systems, matching data and sharing information across the P–20/workforce (P–20W) spectrum.

While states have made tremendous progress building the capacity to collect longitudinal data, developing the systems and practices to tap into P–20W data remains a nascent effort in most states. This primer aims to provide policymakers with information and recommendations to propel states' progress toward using P–20W data to prepare individuals for today's economy.

Policymaker Recommendations

Using data to align systems and provide stakeholders with the information they need for decisionmaking requires leadership. Policymaker leadership is critical to garner the political will and resources to address the barriers of turf, trust, technical issues and time to ensure progress in each state. To meet this goal, policymakers can:

- ▶ **Ensure that P–20W linkages are useful** by prioritizing, through broad-based stakeholder input, the priority questions to drive the development and use of state longitudinal data systems;
- ▶ **Make P–20W linkages possible** by establishing P–20W governance structures and processes, ensuring that data systems are interoperable, and protecting personally identifiable information; and
- ▶ **Put P–20W linkages to use** by investing in research capacity, providing appropriate access to data and building the capacity of stakeholders to use the data.

Answering Today's Education Questions Requires Information From Across the P–20W Landscape

Consider the demands facing the education sector today: Expectations to graduate every student college and career ready require unprecedented alignment of policies and practices across the early childhood; elementary, secondary and postsecondary education; and workforce sectors. Students and educators are taking ever more diverse paths through the education and workforce systems. The stagnant unemployment rate means that policies to create jobs and better prepare individuals for increasingly skilled opportunities are a high priority. Furthermore, the economic crisis has compelled leaders to focus on improving system efficiency and maximizing return on investments. Yet the prevailing culture — in which each sector defines its territory and works solely within those boundaries — fails to serve these needs.

Recognizing that the traditional boundaries between education sectors create inefficiencies and do not capture the reality of many people's movement through the system, a new vision of interconnected systems has emerged and been coined P–20W. Increasingly, stakeholders — including educators, parents, system leaders, policymakers and community members — have questions that demand data from across the P–20W spectrum. Implementing policies and practices to support P–20W alignment requires information that flows across traditional boundaries. For example, connecting information about student achievement in high school and postsecondary education is necessary for assessing college readiness, which can then inform the alignment of high school exit standards and postsecondary education entrance requirements to better prepare students for success.

Policymakers have a responsibility to ensure that their states have the data capacity to answer stakeholders' most critical

questions. To meet this goal, policymakers must make certain that statewide longitudinal data systems are strategically designed, managed and used to satisfy stakeholders' information needs.

This primer provides the following information to guide policymakers' efforts:

- ▶ An overview of what it means to link data systems, match data records and share information and why it matters;
- ▶ A snapshot of the data landscape in key sectors with which K–12 needs to share information;
- ▶ Key policymaker actions to support system linkages; and
- ▶ Examples from the field and additional resources to guide state efforts.

P–20W Defined

Efforts to better prepare all citizens for success have focused attention on the interconnectedness of the education and workforce systems. For example, information about student achievement in high school and postsecondary education is necessary for assessing college readiness, which can then inform the alignment of high school exit standards and postsecondary education entrance requirements. This recognition of the interconnectedness of the systems has led to the emergence of a P–20W vision that encapsulates early childhood; elementary, secondary and postsecondary education; and the workforce.

Using P–20W Data To Improve Student Outcomes: Key Concepts and Challenges

States have made tremendous progress building K–12 statewide longitudinal data systems: According to *Data for Action 2011: DQC's State Analysis*, 36 states have implemented all 10 Essential Elements of state longitudinal data systems. Despite this improved capacity to collect longitudinal data, states have yet to take the necessary actions to support data

use at all levels to improve policy and practice to increase student achievement. As demand grows for information about individual students' progress over time, a critical component of putting data to use involves building data capacity across the P–20W spectrum.

The following steps will ensure that states operationalize the use of P–20W data systems while increasing efficiencies and maximizing the impact of P–20W data:

- ▶ **Link systems** to allow for efficient transfers of data that have been deemed necessary for specified purposes.
- ▶ **Match data** to create data sets with connected records on the same individuals from two or more databases.
- ▶ **Share information** to provide participating sectors with knowledge that was unavailable without the matched data.

While each state will face unique obstacles as it links, matches and shares across traditional sector boundaries, four themes emerge among the various challenges that states are tackling: turf, trust, technical issues and time.

- ▶ **Turf:** The current culture and structures in education do not support stepping across traditional boundaries. People and organizations are accustomed to working only within their defined territories.
- ▶ **Trust:** Individuals and agencies will face a new world of transparency and accountability as cross-sector information is generated and shared. Given that education data have to date primarily been used as a hammer to punish rather than a flashlight to illuminate and inform continuous improvement, mistrust about how data will be used is pervasive.

- ▶ **Technical issues:** A range of technical issues must be addressed, including matching data records when there is no common individual identifier, lack of interoperability among data systems and implementing security frameworks to protect data.
- ▶ **Time:** Success in these endeavors is hindered when the necessary stakeholders have not prioritized P–20W system linkages. Policymaker leadership is required to ensure that this work is both prioritized and given adequate time and resources.

Many states are beginning to construct a culture that supports strategic flow of information across P–20W systems. The following examples highlight leading states that demonstrate some of the myriad ways states can link systems, match data and share information to ensure that decisions at the system, programmatic and individual levels are informed by relevant data and analysis.

State Progress on P–20W Linkages

According to *Data for Action 2011*:

- K–12 and early childhood data are annually matched and shared with a known match rate. (46 states)
- K–12 and postsecondary data are annually matched and shared with a known match rate. (38 states)
- K–12 and workforce data are annually matched and shared with a known match rate. (11 states)

For more information on states' progress on linking systems, matching data and sharing information, see www.DataQualityCampaign.org/stateanalysis/actions/1/.

While each state will face unique obstacles as it links, matches and shares across traditional sector boundaries, four themes emerge among the various challenges that states are tackling: turf, trust, technical issues and time.



Washington: In 2007, Washington passed legislation to create the Education Research and Data Center (ERDC). The ERDC resides in the Office of Financial Management and collaborates with the Legislative Evaluation and Accountability Program committee to conduct research within and across the P–20 system. Data collection from the multiple agencies involved is driven by the research needs and policy questions identified by the ERDC and legislative committees. The ERDC collects from each agency the subset of data needed to answer the identified questions. The K–12 data governance group oversees the introduction of new data collections or data improvements. Each use of P–20 data is governed by data-sharing agreements that specify the purpose of the study, data elements to be shared, analyses to be produced, retention period for the data, plan for destruction of the data, security standards for the storage and transmission of the data, and confirmation that the data cannot be redisclosed by the recipient. Washington also participates, along with Hawaii, Idaho and Oregon, in the Western Interstate Commission for Higher Education project, [Facilitating Development of a Multistate Longitudinal Data Exchange](#), with the goal of piloting data sharing across state lines. This effort seeks to answer questions related to transitions among secondary education, postsecondary education and the workforce that cross state lines.



Florida: Legislation established the Florida Education and Training Placement Information Program as a vehicle to match cross-agency data sets. The Florida Department of Education is designated as the sole state agency with the responsibility to match data sets. The Florida PK20 Education Data Warehouse was created to integrate data from 26 state-level systems and provide a view across systems. Memoranda of understanding also provide parameters for data sharing and use. The department's Division of Accountability, Research and Measurement is responsible not only for operating and maintaining its respective databases but also for managing key data exchange relationships with other state agencies.



Texas: In 2003, through SB 281, the legislature required the Texas Workforce Commission (TWC) to review student outcomes by student cohorts. This work required the matching of postsecondary and workforce data. In 2007, through HB 1, the legislature established three Education Research Centers to help facilitate the matching of data between K–12 and postsecondary education and to some extent with workforce data. The sharing of postsecondary and workforce information occurs between the Texas Higher Education Coordinating Board (THECB) and TWC. TWC sends data to the THECB, which matches the data. The THECB then sends aggregate information back to TWC. For P–16 education data, data matching occurs at the Texas Education Agency, and these matched data sets are sent to the three research centers across Texas.

More information on the efforts of these states and others can be found on the Data Quality Campaign's website in the ["Profiles from the Field" case study portal](#).

Linking to What? Understanding the Data Landscapes in the Early Care and Education, Postsecondary Education, and Workforce Sectors

For policymakers and K–12 leaders to successfully address the challenges of turf, trust, technical issues and time, they must have a basic understanding of the data landscapes in the sectors with which they plan to share appropriate information.

Like bridges connecting multiple land masses, efforts to link data systems across sectors must take into account the dynamics on each side. The early childhood, postsecondary education and workforce data landscapes vary significantly from each other and from the K–12 landscape. Each sector collects and maintains different types and levels of data, often with different definitions. Compared with K–12's centralized structure and defined state authority, governance

in the other sectors is far more diverse. In most cases, no single agency or leader is charged with overseeing that sector. Nevertheless, while each sector faces unique data challenges, all are positioned to leverage policies and initiatives that are creating demand for data and driving progress.

The inserts found in this primer provide a snapshot of the data landscape in the early care and education, postsecondary education, and workforce sectors. These fact sheets are not intended to represent the entire landscape of local, state and federal data efforts but to provide policymakers with basic information to begin conversations in their states.

Policymaker Actions To Ensure that State P–20W Data Capacity Meets Stakeholder Needs

Using data to align systems and provide stakeholders with the information they need for decisionmaking requires leadership. Policymakers' leadership is critical to garner the political will and resources to address the barriers of turf, trust, technical issues and time to ensure progress in their states. They can do so by taking the following actions:

- ▶ **Ensure that P–20W linkages are useful** by prioritizing, through broad-based stakeholder input, the priority questions to drive the development and use of state longitudinal data systems;
- ▶ **Make P–20W linkages possible** by establishing P–20W governance structures and processes, ensuring that data systems are interoperable, and protecting personally identifiable information; and
- ▶ **Put P–20W linkages to use** by investing in research capacity, providing appropriate access to data and building the capacity of stakeholders to use the data.

1. Identify Stakeholders' Priority Questions

Baseball legend Yogi Berra is often quoted as saying, "You've got to be very careful if you don't know where you're going because you might not get there." This basic principle of project management — define the end goal and work backward — applies to building linkages across P–20W data systems. In this case, the end goal is the ability to inform stakeholders' priority questions. To avoid linking, matching and sharing unnecessary information, states should engage critical stakeholders to identify priority questions to drive the design of P–20W data systems that will meet their information needs.

Identifying these questions proves even more important in the context of cross-agency or cross-sector system linkages. States do not need or want to exchange the total universe of data collected and maintained by entities within and across P–20W systems. Moreover, protecting the privacy, security and confidentiality of individuals' data demands that states limit the data that are matched across agencies or sectors to those that are appropriate and necessary.



Massachusetts: Massachusetts' [Early Childhood Information System Vision Document](#) identifies a framework to guide the design of its data system, including three priority questions, as well as the corresponding data elements needed to answer the questions, the current source of the data, and whether an interagency service agreement or parental consent is necessary to share the data.

Policymaker Recommendations

- Identify the priority questions policymakers need to answer to design, implement and evaluate the state's policy, programmatic and operational needs.
- Engage cross-sector stakeholders (including parents; students; employers; educators; and leaders from districts, schools, campuses and programs) to identify the priority questions they need to answer to effectively make decisions in their jobs.
- Prioritize the set of priority questions to drive systems linkage development and guide data matching.

2. Establish P–20W Governance Structures and Processes

Stewardship of any data system requires strong governance as described in [Data Quality Campaign \(DQC\) Action 3](#). The National Center for Education Statistics defines governance as "both an organizational process and a structure; it establishes responsibility for data, organizing program area staff to collaboratively and continuously improve data quality through the systematic creation and enforcement of policies, roles, responsibilities, and procedures."¹

Formal governance structures and processes are critical to guide P–20W systems linkage efforts and to establish accountability for stewardship of data. Cross-agency data

¹ <http://nces.ed.gov/pubs2011/2011805.pdf>

governance helps define roles and responsibilities and formalize relationships among individuals and agencies not used to working together.

Policymakers play a critical role in establishing cross-agency governance structures to guide P–20W systems linkage efforts. According to *Data for Action 2011*, 39 states have cross-agency data governance bodies with authority. Most states reported leveraging existing coordinating bodies, such as a P–20 council, but other states have established specific entities for stewarding cross-agency data work. Regardless of the strategy, it is critical that these bodies include representatives with decisionmaking authority from each agency involved. Some states have constructed multiple tiers of participation, including senior officials to approve high-level decisions and dedicated staff to focus on details and technical issues.

The effectiveness of governance bodies rests on their authority to define a vision for cross-agency data systems linkages as well as define, document and enforce policies and practices for data matching, storage and protection, such as:

- ▶ Determining the priority questions that will guide data collection and sharing;
- ▶ Overseeing data sharing requests and the creation of memoranda of understanding, data sharing agreements or data matching agreements;
- ▶ Determining how, what, when and where cross-agency data are mapped, integrated and stored;
- ▶ Establishing common education data standards;
- ▶ Reviewing and approving data analysis and data use processes;
- ▶ Establishing a privacy policy that guides access, linkages, redisclosure, use and penalties for violation among areas regarding cross-agency data; and
- ▶ Establishing and overseeing a security plan that ensures the security of data, including enforcement of penalties for violation of data privacy, security or data redisclosure among areas within the agency.



Maryland: In 2010 Maryland passed SB 275, which established the Maryland Longitudinal Data System Center and the Maryland Longitudinal Data System Governing Board. The governing board will ensure public transparency and oversee the determination of the policy and research agenda and the privacy and security policies and implementation. Prior to the center's launch in 2014, the board must present the governor and the legislature with a plan that details what data the center will maintain and the center's privacy and security policies.

Policy maker Recommendations

- Establish a cross-agency data governance structure with the authority to coordinate the political will, technical expertise and collaboration necessary to guide linking systems, matching data and sharing information across the P–20W spectrum.
- Expect this cross-agency data governance structure to establish, document and communicate to stakeholders about governance processes.

3. Address Technical Barriers to Linking Systems, Matching Data and Sharing Information

The various data systems within the P–20W spectrum were built over time in silos managed by a variety of programs, institutions, systems and state agencies to meet their unique needs. This individual approach naturally resulted in each system having its own data standards, including definitions, formats, coding, technical specifications and exchange protocols. For example, in K–12, *retention* is a negative term that refers to a student being held back a grade level; in the post-secondary sector, *retention* is a positive term that indicates a student has returned to advance his or her education. As a result, different data systems across the P–20W spectrum “speak different languages” and have difficulty exchanging data, which is known as a lack of interoperability.

Today, as policymakers and system leaders seek to link systems, match data and share information to address priority questions, the absence of interoperability creates unnecessary barriers. The time and resources squandered reconciling data sets inhibit the development of new tools and services. Vendors must tailor products to each system or state's specifications, increasing time and costs. Comparability of information across system lines is undermined, and data quality is risked as data sets are reworked.

In light of state demands to improve cross-agency system linkages, significant efforts are under way to provide voluntary common data standards that will reduce burden; increase efficiency; and improve the comparability, quality and utility of data. The DQC is a partner in the [Common Education Data Standards \(CEDS\) Initiative](#), a coalition of education stakeholders that includes state K–12 and higher education organizations, nonprofit organizations, and vendors working together to ensure that common definitions, code sets, business rules and technical specifications of a subset of key data elements become commonly and voluntarily adopted and widely used within and across the K–12 and postsecondary sectors.

While interoperability is largely a technical issue, the first steps toward solutions rest with policymakers. Policymakers must prioritize interoperability; task technical, policy and program staff with collaboratively addressing this goal; and ensure that the work focuses on data that answer priority questions. Policymakers can also expect system leaders to maximize existing resources such as CEDS.

Policymaker Recommendations

- Expect system leaders to address technical barriers to linking systems, matching data and sharing information.
- Authorize system leaders to standardize data definitions and formats, including through voluntary adoption and implementation of the Common Education Data Standards.

4. Protect the Privacy, Security and Confidentiality of Student Data

Using data to improve student outcomes and protecting the privacy, security and confidentiality of student information are not mutually exclusive goals. Policymakers and stakeholders at all levels must ensure that there is an appropriate and effective balance between the use of data to inform policy decisions and robust policies and practices that protect the privacy, security and confidentiality of personally identifiable data. [States' policies and practices](#), in line with best practices from other sectors and industries, can and should maximize investments in data systems, minimize data risks, improve data quality and increase data management efficiency.

Family Educational Rights and Privacy Act and Other Federal Privacy Laws

To protect the privacy of student education records, the federal Family Educational Rights and Privacy Act (FERPA) was passed in 1974, imposing limits on the disclosure of student records by educational agencies and institutions that receive funds from the U.S. Department of Education. In the 30 years since FERPA was enacted, however, the data landscape and the state role in data collection, sharing and use have expanded, which has raised new issues about how states' sharing and use of longitudinal data relate to student privacy protections. A lack of clarity and consistency in the interpretation of FERPA has created some uncertainty about appropriate ways to connect student-level data to provide answers to priority questions, including data sharing among early childhood, K–12, higher education, and workforce agencies and entities. In December 2011, the Department of Education released [final regulations](#) making these long-awaited clarifications and transforming the FERPA issue, as it relates to education reform efforts, from whether student data may be used for important educational purposes to how student data may be used for these purposes.

In addition to FERPA, other federal privacy laws such as HIPAA and COPPA have implications for these efforts. See [Using Data To Improve Education: A Legal Reference Guide to Protecting Student Privacy and Data Security](#) for more information.

This is especially true when data are being shared across the P–20W spectrum, which faces the following challenges:

- ▶ A lack of clarity and inconsistent interpretation regarding federal privacy laws has created hesitancy to advance these efforts among state and system leaders (See box on the previous page for more details.)
- ▶ Stakeholders’ concerns that student data are at increased risk when shared across agencies must be addressed by transparent communication about proactive strategies in place.
- ▶ Each agency and system has its own protocols, processes, data culture and security frameworks that may cause apprehension about sharing data.
- ▶ Unique policies and processes for protecting the data while they are “in flight” require collaboration among the sharing entities.

Rather than let these concerns handicap efforts to share limited and appropriate data to answer priority questions, states must proactively implement policies and practices that will minimize data risks, improve data quality and increase data management efficiency.



Kansas: Kansas focuses on the security and privacy of its data through the ongoing work of its Data Governance Board, which meets regularly and is directly responsible for managing data requests and ensuring data quality.

Policymaker Recommendations

- Define and clearly communicate authority, responsibility and accountability for decisionmaking and for management and security of data. State policymakers must leverage the collaborative power of cross-agency governance bodies for this purpose.
- Document laws, policies and decisions related to data governance and communicate these policies and procedures in a way that is accessible to stakeholders.
- Ensure that the state has the capacity and resources to implement and sustain these policies and procedures, including staff and technical system infrastructure.

5. Transform Data into Actionable Information for Stakeholders

Raw data do little to assist educators and policymakers with decisionmaking; states can use internal capacity and research partnerships to analyze data so that they can be presented in ways that answer stakeholders’ questions. Developing a P–20W research agenda ([DQC Action 8](#)) is necessary to ensure that stakeholders’ information needs drive the decisions about which data to match when systems are linked.

As longitudinal data are shared across the P–20W spectrum, more robust analysis to answer more sophisticated questions will be possible: States will have the opportunity to analyze student progress across school years and predict future performance; evaluate connections among outcomes and classroom experiences; and capitalize on better data to help inform interventions, classroom and school practices, and district and state policies.

However, transforming data into useful information requires new skill sets at state agencies and ongoing feedback loops with stakeholders to identify needs and guide analyses. To maximize the potential of P–20W data, states will need to invest in their [research and analytic capacity](#) to:

- ▶ Ensure that adequate analytical resources are available to all districts in the state;
- ▶ Maximize the efficiency and security of matching data records to create data sets for analysis; and
- ▶ Produce comparable metrics and reports across the state.

Consider the following [reports](#) that P–20W data make possible or enhance ([DQC Action 6](#) and [Action 7](#)):

- ▶ **Diagnostic reports** that provide academic histories of students’ mastery of specific concepts or skills.
- ▶ **Predictive reports** that show the relationship between earlier and later student outcomes — for example, the relationship between high school grades and test scores and college enrollment, course-taking patterns and grades.

- **Early warning reports** that identify students who are at risk of an undesirable outcome (usually dropping out or failing to graduate from high school prepared for postsecondary education) based on indicators identified from research.
- **Feedback reports** that provide information on outcomes for students after they graduate from a specified school or district. Their purpose is to help determine whether the graduates were well prepared for their next endeavor.



Kentucky: The Kentucky Council on Postsecondary Education developed a series of reports that the state shares with high schools to provide information on their graduates' readiness and performance in Kentucky postsecondary education.

Policymaker Recommendations

- Engage stakeholders in developing your state's research agenda to drive the development and maintenance of the state longitudinal data system ([DQC Action 8](#)).
- Invest in internal capacity and outside partnerships to conduct research and analysis to enable the production of actionable information, such as student-level and aggregate reports ([DQC Action 6](#) and [Action 7](#)).

While the early care and education, postsecondary education, and workforce sectors face unique data challenges, all are positioned to leverage policies and initiatives that are creating demand for data and driving progress.

6. Ensure Timely, User-Friendly and Appropriate Role-Based Access to Data

Information — even actionable information based on P-20W data — is not useful if no one can see it. Therefore, the state must also strategically disseminate this information through products and tools that stakeholders can use to inform decisions.

States should consider a variety of methods for getting data into the hands of stakeholders. At the very least, states can post on their websites reports with data that are appropriate for public release. A more proactive approach involves designing dashboards with data visualizations and portals with role-based access to allow stakeholders access to data that are appropriate for their role in a format that allows them to interact with the data as needed to make decisions. States can also use electronic and traditional newsletters or build measures into report cards.

Data access and use are also promoted if states minimize delays between collecting data and making them available. Efforts to time the release of data and reports to inform key actions can also encourage the use of data. Finally, not everyone needs access to all data. Privacy considerations should be paramount when developing policies for timely and appropriate data access, including the implementation of rules that determine role-based data access.



Arkansas: Arkansas has developed multiple portals designed with specific users in mind. The state is developing portals for the public, researchers and journalists, district and school leaders, teachers, parents, and students. Each stakeholder is awarded a different level of access depending on his/her role.

Policymaker Recommendations

- Provide timely, user-friendly and appropriate role-based access to actionable information ([DQC Action 5](#)).

7. Build the Capacity of Stakeholders To Use Data

States must also ensure that they are building the capacity of users to interpret data properly to effectively answer priority questions and drive decisionmaking ([DQC Action 9](#) and [Action 10](#)). Without the skills to use the data, the power of sharing data across sectors will not be fully realized. With continued development of data linkages, state systems will be able to provide information that stakeholders are not used to receiving. As such, helping people understand how to incorporate those data into decisionmaking becomes even more critical. States should invest in various forms of training and professional development in data analysis and use, ranging from higher education courses to ongoing professional development programs, and tailor training to specific stakeholders.



Georgia: The Georgia Leadership Institute for School Improvement leads a data utilization project that aims to build the capacity of teachers and leaders to use data to improve students' college readiness and completion. Participating districts have formed a professional learning community to improve their own practice and develop better tools and practices for future training.

Policymaker Recommendations

- Implement policies and promote practices for improving educators' capacity to use data ([DQC Action 9](#)).
- Promote awareness and data literacy for all stakeholders ([DQC Action 10](#)).

Conclusion

Ensuring the capacity to access and use high-quality P–20W data will enable states to align programs and policies and inform practices to improve student outcomes. Policymakers have the responsibility to tackle the challenges of turf, trust, technical issues and time; policymaker leadership is essential to prioritizing these efforts and breaking down traditional

boundaries. As states seek to prepare all individuals for the knowledge economy despite decreasing resources, collaborative and thoughtful implementation of linking systems, matching data and sharing information across the P–20W spectrum will ensure that these efforts are informed by robust information that answers today's priority questions.

Resources

1. Identify Stakeholders' Priority Questions

- ▶ [*Connecting Data and Policy: States Now Have the Data To Answer Policy Questions*](#), Data Quality Campaign.
- ▶ [*Connecting Policy and Data: What Are Your State's Critical Policy Questions?*](#), Data Quality Campaign.
- ▶ [*Measuring the Education Pipeline: Common Data Elements Indicating Readiness, Transition and Success*](#), Data Quality Campaign.

2. Establish P–20W Governance Structures and Processes

- ▶ [*Traveling through Time: The Forum Guide to Longitudinal Data Systems*](#), National Center for Education Statistics.
- ▶ [*State Action 3: Data Governance*](#), Data Quality Campaign.

3. Address Technical Barriers to Linking Systems, Matching Data and Sharing Information

- ▶ [*Common Education Data Standards Initiative*](#)
- ▶ [*The Right Data to the Right People at the Right Time: How Interoperable Data Help America's Students Succeed*](#), Data Quality Campaign.

4. Protect the Privacy, Security and Confidentiality of Student Data

- ▶ [*Data Privacy, Security and Confidentiality*](#), Data Quality Campaign.
- ▶ [*Supporting Data Use While Protecting the Privacy, Security and Confidentiality of Student Information: A Primer for State Policymakers*](#), Data Quality Campaign.
- ▶ [*U.S. Department of Education's Proposed FERPA Regulations: Overview and Initial Analysis*](#), Data Quality Campaign.

5. Transform Data into Actionable Information for Stakeholders

- ▶ [*Creating Reports Using Longitudinal Data*](#), Data Quality Campaign.
- ▶ [*Leveraging the Power of State Longitudinal Data Systems: Building Capacity To Turn Data into Useful Information*](#), Data Quality Campaign.

6. Ensure Timely, User-Friendly and Appropriate Role-Based Access to Data

- ▶ [*State Action 5: Role-Based, Timely Access to Information*](#), Data Quality Campaign.

7. Build the Capacity of Stakeholders To Use Data

- ▶ [*State Action 9: Educator Capacity To Use Data*](#), Data Quality Campaign.

Additional Resources

- ▶ [*Coordinated State Early Care and Education Data Systems: What's Next in the States?*](#), Data Quality Campaign.
- ▶ [*Early Childhood Data Collaborative*](#)
- ▶ [*Leveraging Federal Funding for Longitudinal Data Systems: A Roadmap for States*](#), which identifies federal funding opportunities that states can maximize to support activities to collect and use longitudinal data to improve student outcomes, Data Quality Campaign.
- ▶ [*Profiles from the Field*](#) and [*videos of DQC 2010 award winners*](#), which provide more examples of leading states' efforts, Data Quality Campaign.
- ▶ [*Using Linked Data To Drive Education and Training Improvement*](#), Data Quality Campaign.

DQC Issue Pages

- ▶ [*Early Childhood*](#)
- ▶ [*Postsecondary*](#)
- ▶ [*Workforce*](#)

iPDF

- ▶ [*Data: The Missing Piece to Improving Student Achievement*](#), Data Quality Campaign.



To download DQC resources,
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The **Data Quality Campaign (DQC)** is a national, collaborative initiative to encourage and support state policymakers' efforts to improve the availability and use of high-quality education data to improve student achievement. The campaign will provide tools and resources that will help states implement and use longitudinal data systems, while providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focused on improving data quality, access and use.

Early Care and Education Data Landscape

Fact Sheet

Matching K–12 and early childhood data would enable stakeholders to answer priority questions such as:

- ▶ Are children, birth to age 5, on track to succeed when they enter school and beyond?
- ▶ Which children have access to high-quality early care and education (ECE) programs?
- ▶ Is the quality of programs improving?
- ▶ What are the characteristics of effective programs?
- ▶ How prepared is the ECE workforce to provide effective education and care for all children?
- ▶ What policies and investments lead to a skilled and stable ECE workforce?

What child-level ECE data could be useful for matching with K–12 education data?

The [Early Childhood Data Collaborative](#) (ECDC) has emerged as a unified voice on ECE data systems. After identifying the priority policy questions confronting state policymakers, the ECDC identified [10 Fundamentals of coordinated state ECE data systems to guide development of systems](#) that could answer these questions:

1. Unique statewide child identifier;
2. Child-level demographic and program participation information;
3. Child-level data on development;
4. Ability to link child-level data with K–12 and other key data systems;
5. Unique program site identifier with the ability to link with children and the ECE workforce;
6. Program site data on structure, quality and work environment;
7. Unique ECE workforce identifier with the ability to link with program sites and children;
8. Individual ECE workforce demographics, including education, and professional development information;
9. State governance body to manage data collection and use; and
10. Transparent privacy protection and security practices and policies.

How are student-level ECE data currently collected and maintained?

- ▶ Although states may provide a variety of early childhood programs and interventions, they are often administered independently of each other. The result is that information on children's ECE experiences before kindergarten is **siloed and uncoordinated**. With fragmented ECE systems, gathering the information necessary to answer questions within the sector becomes challenging enough, let alone trying to connect the information to other sectors.
- ▶ To measure states' progress toward building and using coordinated state ECE data systems, the Data Quality Campaign, in partnership with the ECDC, surveyed 48 states and the District of Columbia in fall 2010. The **ECDC's inaugural state analysis** revealed that not only are states unable to answer priority policy questions about their public ECE systems, but policymakers also often struggle to obtain answers to basic questions about the number of children served in the state, the characteristics of existing programs and the qualifications of the adults working in ECE programs. Specific findings include:
 - ▶ Every state collects ECE data on individual children, program sites and/or members of the ECE workforce for at least some of the state's ECE programs.
 - ▶ Data gaps remain, as far fewer states maintain individual ECE workforce-level data systems than child- and program site-level data systems, and no state collects child-level development data for all of the state's ECE programs.

- ▶ Data are uncoordinated, as only one state can link data across all ECE programs at the child and program site levels, and no state can link data across all ECE programs at the ECE workforce level.
- ▶ Governance matters because data linkages among ECE, K–12 and other key state systems serving children are most likely to occur between data systems located within the same state agency.

Early Care and Education Defined

While each state will decide what programs to include in its coordinated state early care and education data systems, the ECDC is based on the following programs:

- Child care (birth–age 13);
- Early childhood special education (ages 3–5) and early intervention programs (birth–age 3);
- Early Head Start (birth–age 3) and Head Start (ages 3–5); and
- Prekindergarten.

What opportunities and guidance exist to inform state efforts to improve ECE data systems?

- ▶ **State Advisory Councils.** Under the 2007 reauthorization of Head Start, states were able to access a minimum of \$500,000 through the American Recovery and Reinvestment Act (ARRA) to establish State Advisory Councils (SACs) on Early Childhood Education and Care for children from birth to school entry. Councils are required to “develop recommendations regarding the establishment of a unified data collection system for public early childhood education and development programs and services throughout the State.”¹ Forty-five states have received an SAC grant, of which only three did not prioritize data systems.²
- ▶ **Race to the Top — Early Learning Challenge.** Through this initiative, \$500 million is available to improve early learning and development programs. As part of the selection criteria, states must demonstrate their current status in developing early learning and development data systems according to a set of defined Essential Data Elements for children, program and workforce information. States receiving grants must also have state longitudinal data systems (SLDSs) that include the 12 America COMPETES Act elements; comply with federal, state and local privacy laws; and provide researchers with appropriate access to data from their Quality Rating and Improvement System, SLDS, and coordinated early learning data systems to answer key policy and practice questions.
- ▶ **SLDS Grants.** Established in 2001, the SLDS Grants program supports states in building longitudinal P–20/workforce data systems. These grants initially focused on elementary and secondary education but now include linkages to preschool, postsecondary and workforce data. Many of the [2010 SLDS grantees](#) included plans that correspond to the ECDC 10 Fundamentals. States submitted applications for the FY12 SLDS competition in December 2011. [Linking early childhood data](#) with the state’s K–12 data system is one of the three priorities states may choose.
- ▶ **State Fiscal Stabilization Funds (SFSF).** To qualify for the second round of SFSF, states have committed to demonstrating progress in four areas of education reform, including establishing data systems that track students’ progress from prekindergarten to college and careers. Specifically, states are required to assign a unique identifier to “students enrolled in Federal and State-supported early learning programs ... that will follow each student through the pre-K-12 system” to access the \$48.6 billion.

Early Childhood Data Collaborative

A partnership of:

- The Center for the Study of Child Care Employment at UC Berkeley
- Council of Chief State School Officers
- Data Quality Campaign
- National Conference of State Legislatures
- National Governors Association Center for Best Practices
- Pre-K Now, a campaign of the Pew Center on the States

1 42 USC 9801 et seq. Sec. 642B. (b)(1)(D)(i)(IV) [http://eclkc.ohs.acf.hhs.gov/hslc/Program Design and Management/HeadStartRequirements/HeadStartAct/headstartact.html#642B](http://eclkc.ohs.acf.hhs.gov/hslc/Program%20Design%20and%20Management/HeadStartRequirements/HeadStartAct/headstartact.html#642B)

2 www.nga.org/cms/home/nga-center-for-best-practices/center-issues/page-edu-issues/col2-content/main-content-list/state-early-childhood-advisory-c.html

Postsecondary Education Data Landscape

Fact Sheet

Matching K–12 and postsecondary education data would enable stakeholders to answer priority questions such as:

- ▶ What percentage of graduating high school students go on to take and successfully complete remedial courses in college?
- ▶ Are the expectations of our K–12 and postsecondary education systems aligned?
- ▶ What is the correlation between high school course-taking patterns and college access, remediation and success?
- ▶ Which high-poverty K–12 schools produce graduates who succeed in credit-bearing college courses, and what can be learned from their efforts?

What student-level postsecondary education data could be useful for matching with K–12 education data?

The following list of basic student-level postsecondary education data elements is drawn from various sources, including the National Center for Higher Education Management Systems (NCHEMS) and the State Higher Education Executive Officers (SHEEO), as well as requirements for federal reporting and federally funded programs:

- ▶ A unique student identifier;
- ▶ Demographic information;
- ▶ Enrollment, full-time/part-time status and transfer information;
- ▶ Enrollment in and completion of remedial and developmental courses;
- ▶ Enrollment in and completion of credit-bearing courses;
- ▶ Assessment information;
- ▶ Persistence, degree completion and graduation; and
- ▶ Financial aid status.

How are student-level postsecondary education data currently collected and maintained?

- ▶ **Individual institutions** — including two-year and four-year colleges and public, independent, proprietary and tribal institutions — have a long history of collecting individual student data for their internal management and accountability practices. Multiple organizing and governance structures exist within and across states including institutional systems, coordinating or governing bodies, and state agencies. This diversity has resulted in varied data collection strategies and a historically limited state role in collecting student-level data across institutions. A 2010 [study](#) conducted by SHEEO identified 92 student-level unit record systems across 45 states with considerable variety in design, content and capacity.
- ▶ The nonprofit **National Student Clearinghouse (NSC)** maintains a comprehensive electronic registry of student records that includes student enrollment, degree and loan data but does not include any course-level data. More than 3,300 colleges and hundreds of local school districts participate in the clearinghouse. NSC data allow states to find many students who pursue postsecondary education in another state.
- ▶ The Higher Education Act requires that all higher education institutions that participate in federal student aid programs provide data to the federal government. The U.S. Department of Education's National Center for Education Statistics collects this information through **Integrated Postsecondary Education Data System (IPEDS)**, a system of interrelated annual surveys of more than 6,700 research universities, state colleges and universities, private religious and liberal arts colleges, for-profit institutions, community and technical colleges, non-degree-granting institutions, and other institutions. IPEDS collects institutional-level data in seven areas: institutional characteristics, institutional prices, enrollment, student financial aid, degrees and certificates conferred, student persistence and success, and institutional human and fiscal resources. IPEDS does not currently collect student-level data, but most institutions are able to report to IPEDS by aggregating the student-level data collected and maintained at each institution.

What policies and initiatives are currently driving demand for postsecondary education data and progress around postsecondary education collection?

- ▶ As a condition of receiving federal **State Fiscal Stabilization Funds**, all states committed to:¹
 - ▷ Building a P-16 education data system that includes the following postsecondary student-level data:
 - ▶ A unique statewide student identifier that does not permit a student to be individually identified by users of the system;
 - ▶ Enrollment, demographic and program participation information;
 - ▶ Information about the points at which students exit, transfer into, transfer out of, drop out of or complete P-16 education programs;
 - ▶ Information regarding the extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework; and
 - ▶ Other information determined necessary to address alignment and adequate preparation for success in postsecondary education.
 - ▷ Reporting metrics at the high school, school district and state levels about students' enrollment and success in postsecondary education.
- ▶ The National Governors Association's **Complete to Compete** initiative calls for use of a set of common higher education measures to inform policies, future funding decisions, and parent and student decisionmaking. The measures, known as the Common Completion Metrics, are advocated for by Complete College America. They include progress metrics (enrollment in remedial education, success beyond remedial education, success in first-year college courses, credit accumulation, retention rates and course completion) and completion metrics (degrees and certificates awarded, graduation rates, transfer rates, and time and credits to degree).
- ▶ The American Association of Community Colleges, in collaboration with the Association of Community College Trustees and the College Board, is developing a **Voluntary Framework of Accountability** designed to define appropriate measures of effectiveness based upon/relevant to community colleges' missions and students. When completed, the framework will include defined measures in the areas of student progress and success; measures of the colleges' ability to meet the workforce, economic and community development needs of their service area; a framework for assessing student learning outcomes; and a data collection and display tool that will enable colleges to benchmark student progress and completion data against peer colleges.
- ▶ Twenty-four public higher education systems, representing 378 two-year and four-year campuses and more than 3 million students, submit data to the **Access to Success Initiative (A2S)**. Using that data, the A2S Initiative produces a set of common metrics to answer the following questions: Does a higher education system's entering class reflect the socio-economic and racial/ethnic profile of its state's high school graduates? How do the success rates of low-income and underrepresented minority students compare with those of other students within the system? And do the system's graduates reflect the diversity of the state's high school graduates?

What opportunities and guidance exist to inform state efforts to improve postsecondary education data systems?

- ▶ **The Ideal State Postsecondary Data System: 15 Essential Characteristics and Required Functionality.** In response to the growing demand for robust and aligned data systems, NCHEMS and SHEEO developed these characteristics to promote alignment among and between states' postsecondary data resources. The characteristics are not yet serving as a framework for any formal state or federal efforts to build state data capacity.
- ▶ **Federal grant programs.** Several federal grant programs, including the Statewide Longitudinal Data Systems (SLDS) Grants program, State Fiscal Stabilization Funds, the Race to the Top program and the Workforce Data Quality Initiative grants, either require or permit states to use funds to improve their data capacity, including the capacity to collect or link to postsecondary education data. States submitted applications for the FY12 SLDS competition in December 2011. Linking postsecondary data with the state's K-12 data system is one of the three priorities states may choose.

¹ The original deadline of Sept. 30, 2011, has been extended to Jan. 31, 2012. Further proposed regulations would allow states to apply for an extension until December 2012.

Workforce Data Landscape

Fact Sheet

Matching education and employment and workforce program data would enable stakeholders to answer priority questions such as:

- ▶ How do students' course-taking patterns correlate to students' employment and earnings patterns?
- ▶ Which are the primary area employers that hire students both in and out of school?
- ▶ What is the correlation between in-school employment and high school completion? College persistence and completion? How can employer certifications and education credentials be stacked so that they complement students' progress in work and postsecondary education?
- ▶ Are high school-based career preparation programs (such as career and technical education courses) aligned to area employer needs?
- ▶ What workforce preparation programs successfully collaborate with school systems to ensure improvements in high school completion?
- ▶ When teachers exit the school system, what types of employment and earnings do they obtain?
- ▶ What education experience (in K–12 and higher education) does a child need to obtain to successfully pursue his or her desired career?

What individual-level employment data and workforce education and training program data could be useful for matching with K–12 education data?

As states look to inform education and economic development policy, they can build on a significant history of research using matched education and workforce data that includes information about:

- ▶ Labor markets, including employment and unemployment, available jobs, and employer needs and characteristics.
- ▶ The employment experiences of students and former students.
- ▶ Employment preparation and job placement programs.

How are individual-level employment data and workforce education and training program data currently collected and maintained?

- ▶ Many **federally funded workforce education and training programs** authorized through the Workforce Investment Act (WIA) and the Carl D. Perkins Career and Technical Education Act have a significant history of collecting data for compliance purposes. The state role in these data collections varies depending on whether the state administers the programs, serves as an agent of federally administered programs or is entirely uninvolved.
- ▶ The most consistently available data resource in states is the **Unemployment Insurance (UI) Wage Reporting system**. Wage reports are quarterly reports from a state's wage and salary employers, which include individual worker payroll information for each quarter. The information is used to calculate an employer's quarterly UI tax liability. It is also used to determine employees' eligibility for UI benefits. The wage reporting system does not include information about federal government employment, postal service employment or military enlistment. Each reporting system is state specific and does not include multistate information. UI benefit reporting systems are available as well. When an individual files a claim for UI benefits, his or her eligibility is confirmed through the use of wage reports. The benefit reporting system then reports payments made and the duration of payments.

- ▶ Some states have made progress developing **more comprehensive state data systems** for collecting this and other information, including 13 states currently funded through the federal Workforce Data Quality Initiative (WDQI) grants to improve existing systems (Florida, Iowa, Maine, Maryland, Massachusetts, Montana, North Dakota, Ohio, South Carolina, Texas and Virginia) or develop new systems (Louisiana and Minnesota). WDQI grantees must include information about the following in their state workforce data system: WIA Title I, Wagner-Peyser Act, Trade Adjustment Assistance, UI wage records and UI benefits. These systems must also link to state education agency data systems.
- ▶ The UI Wage Reporting systems in states do not cover federal employees, the uniformed military services or postal service employees. The **Federal Employment Data Exchange System** is a 42-state data exchange system that provides one-stop access to this type of information from the Office of Personnel Management, the U.S. Department of Defense and the U.S. Postal Service.
- ▶ The federal **Wage Record Interchange System** allows state workforce program performance agencies to retrieve limited wage data across state lines. By enabling states to access wage data for individuals who participated in workforce investment programs in one state and found employment in another, states can gain a more comprehensive picture of the effectiveness of their workforce investment programs.
- ▶ **State Labor Market Information units** provide information on state and local labor market conditions. Specifically they collect, analyze, report and publish data that describe and predict labor demand and supply. State Labor Market Information operations are closely related to the Bureau of Labor Statistics, which is an independent statistical agency that collects, processes, analyzes and disseminates statistical data in the field of labor economics and statistics.

What opportunities and guidance exist to inform state efforts to improve the collection and use of employment data and workforce education and training program data?

- ▶ **WDQI.** The U.S. Department of Labor administers the WDQI, which provides competitive state grants to support the development of state workforce data systems that integrate data across workforce programs and link to education data systems.
- ▶ **Statewide Longitudinal Data Systems (SLDS) Grants.** Established in 2001, the SLDS Grants program supports states in building longitudinal P-20/workforce data systems. These grants initially focused on elementary and secondary education but now include linkages to preschool, postsecondary and workforce data. States submitted applications for the FY12 SLDS competition in December 2011. Linking workforce data with the state's K-12 data system is one of the three priorities states may choose.
- ▶ **Local Employment Dynamics (LED) Partnership.** The federal-state LED Partnership is a collaboration between the Longitudinal Employer-Household Dynamics (LEHD) program at the U.S. Census Bureau and state labor market information agencies that is providing new measures on labor markets. Example statistics derived include those related to employment, job creation, turnover and earnings by industry, age and gender. The LEHD program was identified by the U.S. Department of Labor in the solicitation for WDQI grants as an example of a data system that could help to improve state data infrastructure and workforce analysis. State workforce agencies and the LED data infrastructure complement each other to provide a more comprehensive picture of the workforce sector.